IN THE CLAIMS

This listing of claims shall replace all previous claim versions in the present application.

1. (Currently amended) A method for detecting a ligand in a sample comprising:

(a) contacting a sample having a ligand with an affinity substrate, wherein the affinity substrate comprises a receptor capable of specifically binding said ligand, the receptor binding the ligand upon contact with the sample;

(b) contacting the affinity substrate with a detection surface, wherein the detection surface is capable of both uniformly anchoring liquid crystal in the absence of the ligand and binding non-specifically to the ligand, and wherein the ligand which is bound to the receptor is transferred to the detection surface; and

(c) detecting the presence of the ligand on the detection surface by contacting the detection surface with a liquid crystal, wherein the presence of the ligand on the detection surface is detected by a change in the orientation of the liquid crystal contacted with the detection surface.

2. (Previously presented) The method according to claim 1, further comprising:

(d) washing the affinity substrate after (a);

(e) washing the detection surface after (b); or

(f) both (d) and (e).

3. (Previously presented) The method according to claim 1, wherein the receptor or ligand comprises a biomolecule, a biomolecule recognition agent, a peptide, a polypeptide, a protein, a carbohydrate, a toxin, a metal, a heavy metal, a chelator, a pathogen, a virus, a bacterium, a mammalian cell or part of a mammalian cell, a nucleic acid, a nucleic acid analog or mimic, a sugar, an antibody, a Fab, an organic molecule, a lipid, a phospholipid, a drug, a chemical agent, a pesticide or a herbicide

4. (Original) The method according to claim 1, wherein the affinity substrate comprises a polymer, a silica material, a metal or a metal oxide.

5. (Original) The method according to claim 1, wherein the affinity substrate comprises polydimethylsiloxane (PDMS).

6. (Previously presented) The method according to claim 5, wherein the PDMS of the affinity substrate is further terminated by an antibody which acts as the receptor capable of specifically binding said protein ligand, the antibody binding the protein ligand upon contact with the sample.

7. - 9. (Canceled)

10. (Original) The method according to claim 1, wherein the receptor is bound to the affinity substrate via one or more linking moieties.

11. (Previously Presented) The method according to claim 1, wherein the amount of ligand present in the sample is quantified.

12. - 13. (Canceled)

14. (Previously presented) The method according to claim 1, wherein the receptor comprised by the affinity substrate is capable of detecting presence of protein phosphorylation in Epidermal Growth Factor Receptor (EGFR) residues.

15. (Original) The method according to claim 1, wherein the detection surface comprises a self-assembled monolayer.

16. (Original) The method according to claim 15, wherein the self-assembled monolayer comprises an amine, alkanethiol or organosulfur compound.

17. (Original) The method according to claim 15, wherein the self-assembled monolayer is pretreated with an acid prior to (b).

18. (Previously presented) The method according to claim 1, wherein contacting the affinity substrate with the detection surface is performed on at least a portion of the affinity substrate that is curved.

19. (Original) The method according to claim 1, wherein the detection surface causes homeotropic anchoring in the absence of captured ligand.

20. (Original) The method according to claim 1, wherein the liquid crystal comprises a nematic liquid crystal, smectic liquid crystal, polymeric liquid crystal, lyotropic liquid crystal, chromonic liquid crystal, frustrated liquid crystals, thermotropic liquid crystal, columnar liquid crystal, nematic discotic liquid crystal, calamitic nematic liquid crystal, ferroelectric liquid crystal, discoid liquid crystal, or cholesteric liquid crystal.

21. (Original) The method according to claim 1, wherein the liquid crystal is pretreated by illumination with UV light.

22. (Original) The method according to claim 1, wherein the liquid crystal comprises 4-cyano-4'-pentylbiphenyl (5CB), or doped salt thereof.

23. (Previously Presented) The method according to claim 1, wherein orientation of the liquid crystal is detected optically or electrically.

24. (Withdrawn) A detection surface comprising a support, a first layer on the support and a self-assembled monolayer on the first layer.

25. (Withdrawn) The detection surface according to claim 24, wherein the self-assembled monolayer comprises an amine, alkanethiol or organosulfur compound.

26. (Withdrawn) The detection surface according to 24, wherein the first layer comprises a metal layer, polymer layer or a silane layer.

27. (Withdrawn) The detection surface according to claim 26, wherein the metal layer comprises gold, silver, copper, platinum, palladium, chromium, titanium or oxides thereof.

28. (Withdrawn) The detection surface according to claim 24, further comprising a liquid crystal on the detection surface.

29. (Withdrawn) The detection surface according to claim 28, wherein the liquid crystal is thermally annealed to the detection substrate.

30. (Withdrawn) A method of orienting a liquid crystal on a surface containing a ligand using microcontact printing or affinity microcontact printing comprising the steps of:

(a) contacting the ligand to a first surface, wherein the ligand is at least in part attached to the first surface; and

(b) contacting the ligand-decorated first surface to a second surface, wherein the ligand is at least in part attached to the second surface; wherein at least a portion of the first surface is partially curved.

31. (Withdrawn) The method according to claim 30, wherein the first surface comprises an affinity substrate having a receptor capable of specifically binding to the ligand.

32. (Withdrawn) The method according to claim 31, wherein the affinity substrate comprises polydimethylsiloxane (PDMS).

33. (Withdrawn) The method according to claim 30, wherein the second surface further comprises a self-assembled monolayer.

34. (Withdrawn) The method according to claim 33, wherein the self-assembled monolayer comprises an amine, an alkanethiol or an organosulfur compound.

35. (Withdrawn) The method according to claim 30, wherein the ligand comprises a biomolecule, a biomolecule recognition agent, a peptide, a protein, a carbohydrate, a toxin, a metal, a heavy metal, a chelator, a pathogen, a virus, a bacterium, a mammalian cell or part thereof, a nucleic acid, a nucleic acid analogs or mimic, a sugar, antibodies or functional fragment thereof, an organic molecule, a lipid, a phospholipid, a drug, a chemical agent, a pesticide, a herbicide, or a fragment thereof.

36. (Withdrawn) The method according to claim 31, wherein the receptor comprises a biomolecule, a biomolecule recognition agent, a peptide, a protein, a carbohydrate, a toxin, a metal, a heavy metal, a chelator, a pathogen, a virus, a bacterium, a mammalian cell or part thereof, a nucleic acid, a nucleic acid analogs or mimic, a sugar, and antibodies or functional fragment thereof, an organic molecule, a drug, a chemical agent, a pesticide, a herbicide, or a fragment thereof.

37. (Withdrawn) A kit for detecting a ligand comprising:

(a) an affinity substrate;

(b) a detection substrate which is separate from the affinity substrate; and

(c) a liquid crystal.

38. (Withdrawn) The kit according to claim 37, further comprising one or more receptors that are specific for a ligand.

39. (Withdrawn) The kit according to claim 37, further comprising a chemical compound that is capable of chemically modifying the detection surface.

40. (Withdrawn) The kit according to claim 39, wherein the chemical modification comprises an amine.

41. (Withdrawn) The kit according to claim 37, wherein the affinity substrate comprises one or more ligands.